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A Rare Complication of Molar Pregnancy: Uterine Perforation With Ileal Incarceration Following Suction Curettage

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Abstract

Complete hydatidiform mole is a rare form of gestational trophoblastic disease associated with markedly elevated β-hCG and abnormal trophoblastic proliferation. Occurring as an uncommon complication of dilation and curettage (D&C), uterine perforation can happen more frequently in pathologically altered uteri as seen in molar pregnancies. We report a 27-year-old female presenting at 7 weeks gestation with vaginal spotting, lower back pain, and significantly elevated β-hCG. Ultrasound findings raised concern for molar pregnancy, and suction D&C was performed without immediate signs of complication. Several hours post-procedure, the patient developed severe abdominal pain and vaginal bleeding. CT imaging demonstrated uterine fundal perforation with herniation of small bowel. Emergent laparotomy revealed 10 cm of ileum incarcerated within the uterine cavity, which was successfully reduced without resection. Pathology confirmed complete hydatidiform mole, and β-hCG normalized within three months. This case highlights uterine perforation with bowel incarceration as a rare but serious complication of D&C in molar pregnancy and underscores the importance of early recognition and prompt surgical management.

Categories: Obstetrics/Gynecology, General Surgery, Emergency Medicine
Keywords: acute abdomen, bowel herniation, complete hydatidiform mole, gestational trophoblastic disease (gtd), ileal incarceration, molar pregnancy, suction curettage, uterine perforation

Introduction

Gestational trophoblastic disease (GTD) encompasses a variety of pathologies, ranging from benign conditions, such as complete and partial hydatidiform moles, to malignant forms including invasive moles, choriocarcinomas, and gestational trophoblastic neoplasia (GTN) [1]. Complete hydatidiform moles (CHM) specifically result from fertilization of an enucleated ovum whereby chorionic trophoblasts undergo irregular proliferation, leading to cystic swelling of placental villi [2]. The genetic composition of complete moles is most commonly a result of androgenetic diploidy within an empty egg, though other genetic compositions are possible [1,2]. The incidence of hydatidiform moles is approximately 1 in 1,000 - 1,200 pregnancies, with risk increasing at the extremes of reproductive age (<15 or >40 years) [3]. Additional risk factors for GTD include prior abortion and previous GTD, with different molar genotypes each conferring varying risks of persistent disease [4].

While vaginal bleeding remains the most common presenting symptom of CHM, seen in ~80-90% of cases, classic findings such as uterine enlargement, hyperemesis gravidarum, and pregnancy-associated hypertension are less frequently observed by comparison due to earlier sonographic and serologic detection [5]. Following dilation and curettage (D&C), serial β-hCG surveillance is required because CHM carries a 10-30% risk of transformation to GTN, with dispermic moles associated with greater malignant potential than monospermic [6]. Uterine perforation following D&C may additionally increase the risk of molar tissue seeding and intraperitoneal dissemination [7].

D&C procedures have a wide variety of known complications, most commonly hemorrhage, with an estimated risk of uterine perforation of approximately 0.3% in premenopausal women and 2.6% in postmenopausal women [8]. While multiparity, advanced reproductive age, and prior gynecologic procedures are other known risk factors for uterine rupture [8], we present a case highlighting a rare and potentially life-threatening complication of D&C in the context of a CHM, in which a section of bowel herniated into the uterine cavity and became incarcerated. Due to the rarity of bowel incarceration following uterine perforation and the non-specific nature of its presentation [8], this case illustrates the need to recognize persistent postoperative pain and assess promptly for perforation and visceral injury.

Case Presentation

A 27-year-old gravida 3 para 1 female at 7 weeks' gestation by first-trimester ultrasound, discordant with last menstrual period dating, presented with two weeks of intermittent vaginal spotting and progressively worsening lower back pain. Her history was notable for a prior spontaneous abortion. She reported

intermittent passage of small brown clots but denied fever, chest pain, dyspnea, hematuria, nausea, vomiting, or abdominal pain. Two weeks prior to presentation, transabdominal and transvaginal ultrasound (TAUS/TVUS) demonstrated an intrauterine gestational sac corresponding to 5 weeks' gestation without a yolk sac or fetal pole, along with small subchorionic hemorrhages (Figure *1A*).



FIGURE 1: Ultrasonographic Findings of Complete Molar Pregnancy

(A) Initial transvaginal ultrasound at 5 weeks' gestation demonstrating a gestational sac with associated subchorionic hemorrhage, suggestive of early pregnancy (white arrow). (B) Follow-up transabdominal and (C) transvaginal ultrasound performed two weeks later demonstrating a large, lobulated intrauterine mass surrounded by numerous cystic areas (white arrows). No yolk sac or fetal pole is identified, findings concerning complete molar pregnancy.

The key events in the patient's clinical course are summarized in Table *1*.

Timeline	Clinical Event
Initial ultrasound	Gestational sac measuring approximately 5 weeks, without a yolk sac or fetal pole (Figure 1A).
ED presentation	Two weeks of vaginal spotting and worsening lower back pain. Repeat ultrasound showed an enlarging, lobulated intrauterine structure with cystic spaces (Figures 1B-1C). β-hCG was 97,907 mIU/mL.
Two days later	β-hCG rose to 127,468 mIU/mL. Chest radiograph showed no acute cardiopulmonary abnormality.
Suction D&C	Uterus estimated at 10 weeks' size. Evacuation appeared uncomplicated; the patient had mild abdominal discomfort before discharge.
Several hours after D&C	Severe abdominal pain with guarding, nausea, vomiting, and vaginal bleeding. FAST showed no intraperitoneal free fluid; CT demonstrated uterine perforation with bowel herniation (Figure 2).
Emergency surgery	Approximately 10 cm of incarcerated ileum was reduced from a 1.5 cm uterine defect. Bowel perfusion was confirmed with indocyanine green imaging, and the uterine defect was repaired (Figure 3).
Pathology and follow-up	Pathology confirmed a complete hydatidiform mole. β-hCG normalized within three months (Figure 4).

TABLE 1: Timeline of the Patient's Clinical Course

On examination, the patient was hemodynamically stable, with a benign abdomen and a 5 cm anteverted uterus without fundal or adnexal tenderness or active vaginal bleeding. Initial laboratory evaluation demonstrated β-hCG of 97,906.8 mIU/mL. Repeat TAUS/TVUS revealed interval enlargement of an intrauterine lobulated sac-like structure with multiple surrounding cystic spaces and persistent absence of a yolk sac or fetal pole (Figure *1B*-*1C*), raising concern for failed pregnancy versus molar pregnancy.

The patient returned two days later for repeat evaluation, as the pregnancy was desired and she had initially deferred uterine evacuation pending further assessment. Serial β-hCG increased further to 127,468.3 mIU/mL, a 30.2% increase over 48 hours. This rise, considered alongside the evolving ultrasound findings, further raised concern for a molar pregnancy. Chest radiography at that time demonstrated no acute cardiopulmonary abnormalities. The patient was counseled extensively regarding likely molar pregnancy, the need for uterine evacuation, serial postoperative β-hCG surveillance, and temporary contraception.

Five days later, the patient underwent suction D&C under general anesthesia. Examination demonstrated a mobile anteverted uterus approximately 10 weeks in size with an open cervical os. Sequential cervical dilation was performed, followed by suction evacuation using a 9-mm curette. Approximately 100 mL of

products of conception were obtained over nine passes. Completion ultrasound demonstrated a thin endometrial stripe, and the patient was discharged after recovery with minimal abdominal tenderness.

Several hours later, she returned to the emergency department with severe lower abdominal pain, nausea, vomiting, and vaginal bleeding. She reported worsening pain beginning in the post-anesthesia care unit that became intolerable after discharge. On examination, she appeared in significant distress with persistently low diastolic blood pressure (101-111/41-56 mmHg), otherwise hemodynamically stable. Abdominal examination disclosed severe suprapubic tenderness with guarding. A bedside focused assessment with sonography for trauma (FAST) exam was negative for intraperitoneal free fluid but demonstrated complex intrauterine fluid, likely blood products.

Laboratory evaluation revealed leukocytosis with neutrophilic predominance and elevated lactate. The β-hCG level remained markedly elevated, although it had declined from its preoperative value (Table *2*). Computed tomography (CT) of the abdomen and pelvis with intravenous (IV) contrast demonstrated full-thickness uterine fundal perforation with herniation of mesenteric fat and mesenteric vessels into the uterine cavity (Figure *2A*-*2B*). Small bowel was noted traversing the uterine defect without evidence of pneumoperitoneum. A small-volume pelvic free fluid was present.

Parameter	Value	Reference range
β-hCG, initial evaluation	97,906.8 mIU/mL	4,059–153,767 mIU/mL
β-hCG, repeat evaluation	127,468.3 mIU/mL	31,366–149,094 mIU/mL
β-hCG, following D&C	108,904.8 mIU/mL	N/A immediately after evacuation
White blood cell count, following D&C	12.89 × 10^3/μL	4.0–11.0 × 10^3/μL
Lactate, following D&C	3.0 mmol/L	0.5–2.2 mmol/L

TABLE 2: Pertinent Laboratory Results During Initial Evaluation and Following D&C

Note: β-hCG reference ranges are gestational-age dependent and are provided for contextual comparison only. Elevated β-hCG levels alone are not diagnostic of molar pregnancy and must be interpreted alongside clinical and ultrasonographic findings.

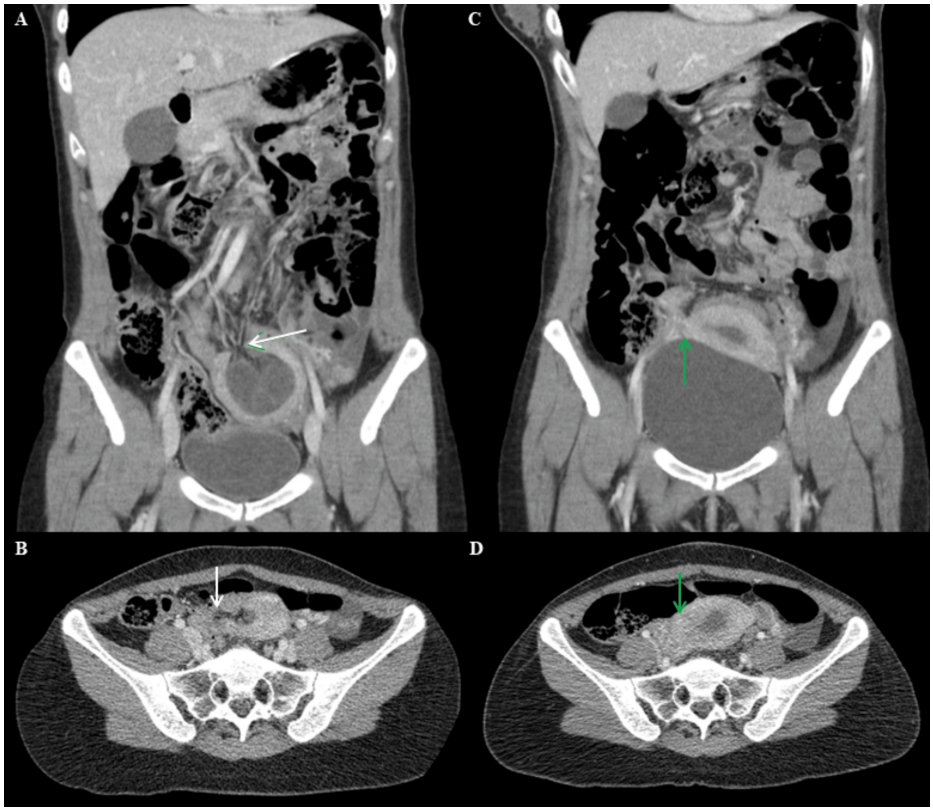


FIGURE 2: CT Findings Before and After Surgical Repair of Uterine Perforation

(A,B) Coronal and axial contrast-enhanced CT images of the abdomen and pelvis demonstrating full-thickness uterine fundal perforation with herniation of mesenteric fat and mesenteric vessels into the uterine cavity (white arrows), associated complex intrauterine fluid likely representing blood products, and a small-volume pelvic free fluid. (C,D) Follow-up coronal and axial contrast-enhanced CT images obtained postoperatively demonstrating interval repair of the uterine fundal perforation with resolution of the previously identified uterine discontinuity (green arrows). Expected postoperative pneumoperitoneum and small-volume nonspecific intraperitoneal fluid are present.

The patient was emergently taken to the operating room for diagnostic laparoscopy by the gynecology service with intraoperative general surgery consultation. Initial laparoscopic survey identified a 1.5 cm uterine perforation near the left cornua containing incarcerated small bowel and mesentery (Figure *3*). Attempts at laparoscopic reduction were unsuccessful due to dense incarceration and resulted in a 1 cm small bowel serosal tear. The procedure was therefore converted to exploratory laparotomy.

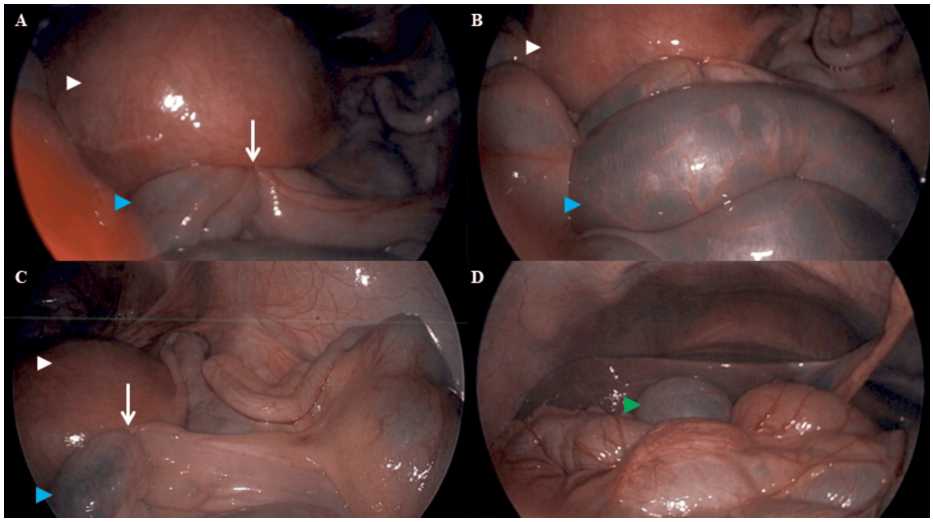


FIGURE 3: Intraoperative Laparoscopic Findings of Uterine Perforation With Ileal Incarceration

(A-C) Intraoperative laparoscopic images demonstrating full-thickness uterine fundal perforation (white arrows) with incarcerated terminal ileum and mesentery protruding through the defect (blue arrowheads). White arrowheads in panels A-C point to the uterus. (D) Superior laparoscopic survey of the abdomen demonstrating grossly viable intra-abdominal viscera, including healthy-appearing small bowel, liver, and gallbladder (green arrowhead).

Through a limited infraumbilical midline incision, approximately 10 cm of terminal ileum was manually reduced from the uterine cavity. The involved bowel initially appeared hyperemic with petechiae, venous congestion, and absent peristalsis. After 20 minutes of warm saline irrigation, bowel color improved and peristalsis returned. Indocyanine green fluorescence imaging confirmed preserved perfusion throughout the affected segment, allowing bowel preservation without resection. The serosal injury was repaired primarily using interrupted absorbable sutures. The uterine perforation was then repaired in a running fashion with absorbable suture. Final inspection demonstrated excellent hemostasis and viable bowel. The patient tolerated the procedure without intraoperative complications.

Postoperatively, the patient remained hemodynamically stable. Follow-up CT imaging demonstrated expected postoperative changes, including small-volume pneumoperitoneum and mild ileus without evidence of ongoing bowel compromise (Figure *2C*-*2D*). Her abdominal pain gradually improved, bowel function returned, and diet was advanced successfully over a three-day period. The patient was discharged on postoperative day 4. Histopathologic examination of the evacuated tissue from the D&C confirmed a complete hydatidiform mole.

Following discharge, serial outpatient β-hCG surveillance demonstrated appropriate decline and normalization within three months (Figure *4*). Chest imaging remained negative for metastatic disease throughout follow-up. She was initiated on depot medroxyprogesterone acetate for contraception and counseled to avoid pregnancy for at least six months following normalization of β-hCG levels.

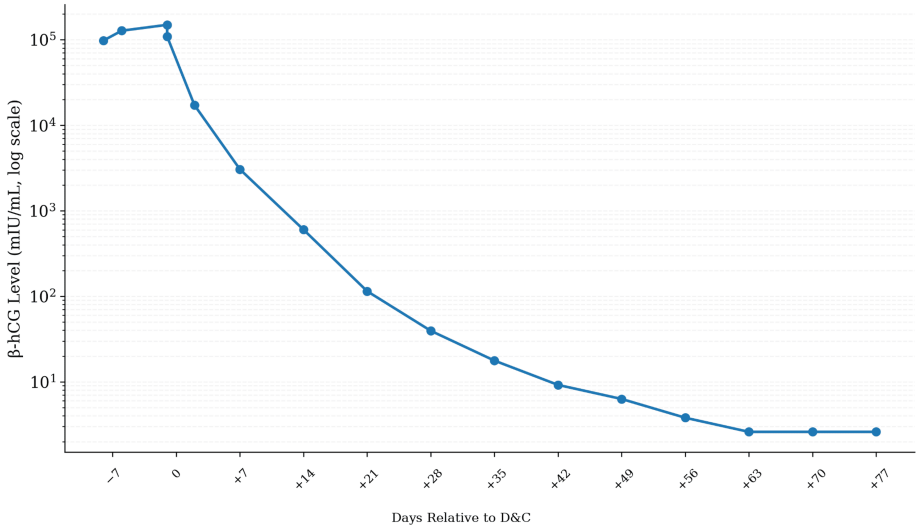


FIGURE 4: Serial β-hCG Trend Pre- and Post-Suction Curettage

Serial β-hCG levels demonstrating marked preoperative elevation consistent with molar pregnancy, followed by a rapid postoperative decline after suction curettage and normalization over a 3-month follow-up. Day 0 represents the day of D&C; negative values indicate measurements obtained before the procedure and positive values indicate days after the procedure. β-hCG levels are displayed on a logarithmic scale.

Discussion

Complete hydatidiform mole is characterized by diffuse trophoblastic hyperplasia and hydropic villous degeneration resulting from abnormal fertilization [3,5]. Compared with partial moles, complete moles demonstrate greater trophoblastic proliferation, higher β-hCG levels, more pronounced uterine enlargement, and increased risk of persistent GTN [2]. Early presentations may mimic failed intrauterine pregnancy, particularly when ultrasound initially demonstrates an empty gestational sac without fetal structures [2]. In this case, interval enlargement of the cystic intrauterine lesion with persistently rising β-hCG levels increased suspicion for molar pregnancy prior to histopathologic confirmation.

The extensive trophoblastic proliferation seen in complete molar pregnancy may significantly distort uterine architecture and weaken the myometrium [7,9]. At the time of evacuation, our patient's uterus measured approximately 10 weeks in size despite an estimated gestational age of 8 weeks, reflecting substantial abnormal enlargement. This discrepancy could have increased susceptibility to perforation during suction D&C, although this case does not establish that the myometrium was weakened or that these findings caused the perforation. Rare reports of spontaneous uterine rupture in complete molar pregnancy describe a distinct mechanism and should not be taken as evidence of myometrial invasion in this patient [10].

Although suction D&C is the standard fertility-sparing treatment, uterine perforation remains a rare but potentially devastating complication that may result in hemorrhage, infection, infertility, visceral injury, hysterectomy, or death [11]. In the setting of molar pregnancy, perforation also raises concern for intraperitoneal dissemination of trophoblastic tissue, potentially increasing the risk of persistent or metastatic GTN [7]; whether this occurred or affected GTN risk in this patient is unknown. Although our patient demonstrated appropriate postoperative β-hCG decline without evidence of metastatic disease, prolonged surveillance remained essential.

Bowel incarceration through a uterine perforation is exceedingly uncommon but may rapidly progress to strangulation, ischemia, necrosis, perforation, sepsis, and need for bowel resection if not recognized promptly [8]. This case highlights that clinical stability and absence of free intraperitoneal fluid do not exclude serious visceral injury following uterine instrumentation, as ultrasound remains limited in its ability to reliably exclude complications such as uterine perforation. CT imaging proved critical for diagnosis by demonstrating uterine perforation with herniation of mesenteric fat, mesenteric vessels, and small bowel into the uterine cavity. Fundal and cornual perforations, as illustrated in this case, may pose particularly high risk for bowel involvement because of their proximity to adjacent viscera [11]. In this case, the suction effect generated during D&C, in addition to the uterine perforation itself, may have contributed to bowel traction and subsequent incarceration, although operative findings cannot confirm the mechanism of incarceration. Notably, bowel incarceration following uterine perforation remains an exceptionally rare phenomenon even in the setting of CHM [8]. Persistent or disproportionate abdominal pain after D&C should therefore prompt urgent evaluation with cross-sectional imaging when perforation is suspected. Early multidisciplinary management involving gynecology and general surgery was essential in this case and

allowed timely bowel reduction and preservation before irreversible bowel ischemia developed.

Conclusions

Although exceedingly rare, this case highlights the potentially life-threatening presentation of visceral incarceration through a perforated uterine wall following suction evacuation of a CHM. While patients may present clinically stable immediately following evacuation, it is critical to maintain a low diagnostic threshold and high clinical suspicion for visceral injury in patients with unremitting or increasing abdominal pain status-post D&C. Early recognition and radiographic investigation was important in guiding appropriate diagnosis and management. This case reinforces the importance of multidisciplinary vigilance that clinicians should exercise when managing molar pregnancies and their associated complications in efforts to improve patient outcomes.

Additional Information

Author Contributions

All authors have reviewed the final version to be published and agreed to be accountable for all aspects of the work.

Concept and design: Taytem M. Rath, Gregory T. Spencer

Acquisition, analysis, or interpretation of data: Taytem M. Rath, Tayba Aziz, Gregory T. Spencer, Petr Itzhak

Drafting of the manuscript: Taytem M. Rath, Gregory T. Spencer

Critical review of the manuscript for important intellectual content: Taytem M. Rath, Tayba Aziz, Gregory T. Spencer, Petr Itzhak

Supervision: Tayba Aziz, Petr Itzhak

Disclosures

Human subjects: Informed consent for treatment and open access publication was obtained or waived by all participants in this study. **Conflicts of interest:** In compliance with the ICMJE uniform disclosure form, all authors declare the following: **Payment/services info:** All authors have declared that no financial support was received from any organization for the submitted work. **Financial relationships:** All authors have declared that they have no financial relationships at present or within the previous three years with any organizations that might have an interest in the submitted work. **Other relationships:** All authors have declared that there are no other relationships or activities that could appear to have influenced the submitted work.

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